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PATENT SPECIFICATION

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ORIGINAL PATENT

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Headphone

The invention relates to a headphone that is intended to be attached to the head of the wearer. It is designed such that the telephone capsule is arranged so as to be movable in relation to the earpiece and can be placed in two different positions, one of which enables the hearing of the telephone and the other of which enables free listening, so that it is not necessary to remove the headphone in order to freely listen.

In order to provide a reliable soundproofing between the earpiece and the telephone capsule during telephonic listening, the telephone capsule is has an appropriately conical form and is arranged such that it comes to rest in a recess in the earpiece. In order to be placed in the position for free hearing, the telephone capsule is swingable first in a direction perpendicular to the plane of a base plate carrying the earpiece and thereafter in a direction parallel to said plane. Advantageously, this occurs through the fact that the telephone capsule is attached to a carrier that, via a hinge member fastened to the carrier, is supported on a bolt forming the other half of

the hinge in such a way that this carrier can be pivoted perpendicularly to the plane of the base plate, in order to enable the withdrawal of the telephone capsule from the recess of the earpiece. In addition, the bolt forming the other half of the hinge is appropriately arranged in a rotatable manner in the base plate carrying the earpiece such that the bolt enables a movement of the capsule carrier parallel to the plane of the base plate. In order to limit the amplitude of the motion of the telephone capsule parallel to the plane of the base plate, a projection in the form of a bolt is advantageously provided on the base plate, which bolt projects into a circular-arc shaped recess in the hinge half of the capsule carrier and serves as a stop for the ends of this recess. Advantageously, the circular-arc shaped recess is designed such that its depth diminishes in the turn-out direction so that, in the "free listening" position, a pivoting movement of the telephone capsule perpendicularly to the plane of the base plate is for practical purposes impossible. In addition, appropriate means are attached for the purpose of locking the telephone capsule in its telephonic listening position. This takes place, for example, through a lever that is swingably mounted on the telephone capsule and is acted on by a spring, which lever projects with an extension into a lug present on the base plate and prevents any undesired movement of the telephone capsule. Through a movement of the lever, which can be manually released, this extension is withdrawn from the lug and the telephone capsule is unlocked.

In the following, an embodiment form of the headphone according to the invention is described with the aid of the accompanying drawings.

Shown in Fig. 1 is a longitudinal section and Fig. 2 a view of the headphone as seen from above in the position for telephonic listening, and with the protective hood having been removed.

Figs. 3 and 4 show the headphone corresponding to Figs. 1 and 2 in the position for free listening, but with Fig. 4 representing a left headphone, while Fig. 2 shows a right headphone.

The headphone visible in the drawings consists of a part that rests tightly against the head of the wearer, being held in place by means of adjustable straps or the like, and a part that can be folded down and swung away from the latter. The fixed part consists of a base plate 1, which in the upper region has a projection 2 with a circular, conically beveled opening. The groove 3 turned into this projection serves the attachment of an elastic, advantageously rubber, earpiece 4 adapted to the shape of the ear, which earpiece is partially filled with soft material 5. The location of the circular opening of the earpiece corresponds with that of the opening in the extension 2 of the base plate and the opening is at that location 6 likewise conically beveled. The movable part possesses the magnet system 7, which is attached by screws to a carrier 8 in the form of a plate. The telephone capsule 9 has a conical shape such that it fits into the beveled openings of the base plate and earpiece, whereby a reliable soundproofing is achieved. Fastened via screws 10

to the lower end of the plate 8 is a hinge half 11. This hinge half engages a bolt 12, which is formed as the hinge counterpart and is fastened to the base plate 1, and is supported therein in a freely rotatable manner by means of a shaft 13, thus enabling a movement of the telephone capsule perpendicularly to the plane of the base plate 1. This movement is limited by the magnitude of the beveling 15 of a protective hood 14 enclosing the magnet system, which hood is fastened to an extension 17 of the hinge half 11 by means of a screw 16. This beveling is at least great enough that the telephone capsule can be lifted off the base plate far enough that contact with the inner edge of the base plate is prevented during the displacement of the capsule parallel to the plane of the base plate. The hinge piece 12 is inserted through an opening 18 in the base plate 1 and, by means of the leaf spring 19 that engages a groove 20 formed at one end of the hinge piece 12, is fastened to the base plate by the screw 20 such that the hinge piece 12 can freely rotate. The limiting of the amplitude of movement of the telephone capsule parallel to the plane of the base plate takes place through a guide pin 22 that is attached to the base plate 1 and engages a circular-arc shaped recess 23 in the hinge piece 11, and serves as a stop for the ends of this recess. The depth of the recess diminishes in the turn-out direction of the telephone capsule, so that in the "telephonic listening" position the guide pin 22 can project the most into the hinge piece 11 (Fig. 1) and in the "free listening" position the least (Fig. 3). Achieved thereby is the fact that in the "free listening" position a pivoting movement of the telephone capsule perpendicularly to the plane of the base plate is for practical purposes impossible. The locking of the telephone capsule in the "telephonic listening" position is accomplished through a lever 25, which is supported in a freely rotatable manner around the bolt 26 recessed into the plate 8 and secured through the snap ring 27. The lever 25 is guided by the bolt 29 engaging the slot 28 and, under the effect of the spring 30, pressed upwardly such that the extension 31 engages the lug 32 of the base plate 1. In this way, any undesired movement of the telephone capsule is prevented. In order to shift the telephone capsule to the "free listening" position, the lever 25 is grasped by the handle 33 and pushed downwardly far enough that it leaves the slot 28. This is sufficient to remove the extension 31 from the lug 32. The telephone capsule is thereby released and can be folded out and laterally displaced (Figs. 3 and 4). The handle 33 is always arranged on the outer side towards which the movable part is displaceable, so that the handle can be easily actuated by hand (see Fig. 2, right phone and Fig. 4, left phone).

The design of the headphone according to the invention offers great advantages especially in such cases in which, for example, two phones are attached to the head of the wearer by means of adjustable straps, so that a displacement or removal of the phones involves very inconvenient and time-consuming manipulations.

PATENT CLAIM:

Headphone intended to be attached to the head of the wearer, characterized in that the telephone capsule is arranged so as to be movable in relation to the earpiece and can be placed in two different positions, one of which enables the hearing of the telephone and the other of which enables free listening, so that it is not necessary to remove the headphone from the ear in order to freely listen.

DEPENDENT CLAIMS:

1. Headphone as claimed in the patent claim, characterized in that, in order to achieve a reliable soundproofing between the earpiece and the telephone capsule during telephonic listening, the telephone capsule has a conical form and is arranged such that it comes to rest in a recess in the earpiece, whereby the telephone capsule, in order to be set in the position for free listening, can be swung first in a direction perpendicular to the plane of a base plate carrying the earpiece and thereafter in a direction parallel to the same plane.
2. Headphone as claimed in the patent claim and dependent claim 1, characterized in that the telephone capsule is attached to a carrier (8) that, by means of a hinge component (11) fastened to the latter, is supported on a bolt forming the other hinge component such that this carrier can be pivoted perpendicularly to the plane of the base plate, in order to enable a withdrawal of the telephone capsule from the recess of the earpiece.
3. Headphone as claimed in the patent claim and dependent claims 1 and 2, characterized in that the bolt, around which the capsule carrier is swingably supported, is arranged in the base plate carrying the earpiece such that a movement of the capsule carrier parallel to the plane of the base plate is possible.
4. Headphone as claimed in the patent claim and dependent claims 1 – 3, characterized through a hood that is attached to the capsule carrier, joins in the movement of the latter, and encloses the telephone magnet system, which hood is beveled at the end facing the hinge components and thereby limits the amplitude of the movement of the telephone capsule perpendicularly to the plane of the base plate.

5. Headphone as claimed in the patent claim and dependent claims 1 – 4, characterized in that, in order to limit the amplitude of the movement of the telephone capsule parallel to the plane of the base plate, an extension is provided for the base plate, which extension projects into a circular-arc shaped recess in the hinge half of the capsule carrier and serves as a stop for the ends of this recess.
6. Headphone as claimed in the patent claim and dependent claims 1 – 5, characterized in that the depth of the recess that is present in the hinge half of the capsule carrier and works in conjunction with the extension provided on the base plate diminishes in the turn-out direction of the telephone capsule, so that in the “free listening” position a pivoting movement of the telephone capsule perpendicularly to the plane of the base plate is for practical purposes impossible.
7. Headphone as claimed in the patent claim, characterized in that means are present for locking the telephone capsule in its position for telephonic listening.
8. Headphone as claimed in the patent claim and dependent claim 7, characterized through a lever that is mounted in a pivoting manner on the telephone capsule (8) and is under the influence of a spring, which lever has an extension that, as a result of the action of the spring, projects into a lug present on the base plate and prevents any undesired movement of the telephone capsule, the lever being operable by hand and, through the withdrawal of the extension from the lug, allowing the telephone capsule to be released.

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